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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/964,211	09/25/2001	Akihiko Ito	3333772000101	2026

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EXAMINER	
KERVEROS, JAMES C	

ART UNIT	PAPER NUMBER
2133	9

DATE MAILED: 02/13/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 09/964,211	Applicant(s) ITO ET AL.	
	Examiner James C Kerveros	Art Unit 2133	

-- The MAILING DATE of this communication appears on the cov r sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *24 October 2003*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-87* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-87* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. §§ 119 and 120

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

13)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

a) ☐ The translation of the foreign language provisional application has been received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: .

DETAILED ACTION

Response to Amendment

This Office Action is in response to Amendment filed October 24, 2003.

This Application is a continuation of US Application 09/254,084, now US Patent No. 6,459,259.

Claims 1-87 are pending.

Terminal Disclaimer

The terminal disclaimer filed on October 24, 2003 disclaiming the terminal portion of any patent granted on this application which would extend beyond the expiration date of US 6,459,259 has been reviewed and is accepted. The terminal disclaimer has been recorded.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1-25, 29-68, 72-87 are rejected under 35 U.S.C. 102(e) as being anticipated by Maeng (US 6563331).

Regarding independent Claims 1 and 44 and dependent Claims 2-5, 9, 31, 45-48, Maeng discloses a test and burn-in apparatus and method for testing semiconductor chip package devices carried by test trays, comprising:

Transporting a first test tray (10a), containing a plurality of semiconductor devices, along a first transport path on rail 38 from the loader 34 to a first test position (test head 23) of the test and burn-in (TABI) apparatus (100a), FIGS. 4 and 5;

Transporting a second test tray (10a), containing a plurality of semiconductor devices, along a second transport path on rail 38 from the loader 34 to a second test position (test head 23) of the test and burn-in (TABI) apparatus (100b), FIGS. 4 and 5;

Testing at least one device on the first tray (10a) at the first test position (test head 23), where testing is performed by electrically connecting each of the semiconductor devices in one of the test trays 10 to one of the test heads 23, of the TABI apparatus (100a), FIGS. 4 and 5.

Testing at least one device on the second tray (10a) at the second test position (test head 23), where testing is performed by electrically connecting each of the semiconductor devices in one of the test trays 10 to one of the test heads 23, of the TABI apparatus (100b), FIGS. 4 and 5;

Regarding independent Claims 22 and 65, and dependent Claims 23-25, 66-68, Maeng discloses the common claimed limitations recited in claims 1 and 44. In addition, Maeng discloses the limitation of first and second transport path on rail 38 for

transporting a first test tray (10a) and a second test tray (10a), in parallel to the first test position (test head 23) of the TABI apparatus (100a) and a second test position (test head 23) of the TABI apparatus (100b), respectively, as shown in FIGS. 4 and 5. Furthermore, Maeng, in column 9, line 20-26, describes the parallel testing performance, by stating the capacity of the simultaneous parallel test has increased to two hundred fifty-six parallel from sixty-four parallel. Accordingly, one may likewise expect an increase in the number of the devices, which are capable of being tested at once in each test and burn-in apparatus of this invention.

Regarding Claims 6, 49, 72, Maeng discloses loading the first test tray (10a) using loader 34 of TABI apparatus (100a) and loading the second test tray (10a) using loader 34 of TABI apparatus (100b) with a plurality of semiconductor devices, after loading the first test tray with devices, FIGS. 4 and 5.

Regarding Claims 7, 8, 11, 29, 30, 33, 50, 51, 54, 73, 74, 77, with respect to claimed limitation of transporting a third and fourth test tray, Maeng shows in FIG. 4, four test heads (23) where the four test trays are being transported one after the other on rail 38 occupying each test head, where for example the first tray moves from the loader to the first test head followed by the second, third and fourth tray.

Regarding Claims, 10, 32, 53, 76, Maeng discloses unloader 36 to unload tested trays 10b, from the first, second, third and fourth trays containing already tested devices, after the have undergone tasting though test head 23.

Regarding Claims 12-17, 34-39, 55-60, 78-83, Maeng discloses environmental chamber, such as test and burn-in (TABI) apparatus (100a), FIGS. 4 and 5 for

maintaining environmental conditions as temperature, at the four test positions (test head 23), where the test heads 23 are also connected to a main frame 21 which includes a control unit 25, a coolant refrigerator unit 27, and a power source 29, and where the chamber 32 applies heat or cooling to the test heads for a proper test and/or burn-in temperature.

Regarding Claims 18, 19, 40, 41, 61, 62, 84, 85, Maeng discloses a device, which is an electronic device integrated circuit (semiconductor chip package), where the test tray 10 includes a plurality of inserts 12, provided within a tray frame 14, containing semiconductor devices, FIG. 2.

Regarding Claims 20, 21, 42, 43, 63, 64, 86, 87, Maeng discloses a support structure (loader 34) for supporting a stack of trays on new trays (10a), which have not yet been tested, are then loaded onto the rail 38 by the loader 34, and moving in a direction on rail 38 to the test positions (23) in the TABI apparatus 100, FIGS. 4 and 5.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 26-28 and 69-71 are rejected under 35 U.S.C. 103(a) as being unpatentable over Maeng (US 6563331) in view of Gray, III (US 6204679).

Regarding Claims 26-28 and 69-71, Maeng does not explicitly disclose the features of transporting the first and second trays in parallel along one transport path that is wider than a transport path that would be necessary for transporting only the first tray and further transporting the first and second trays using a single drive, wherein the first and second trays are mechanically coupled together for transport to the test positions.

Gray, III (US 6204679), in an analogous art, discloses test system 210 in FIG. 2, for testing semiconductor devices during manufacture, which includes a temperature chamber 220, a test head 214A connected to a tester main frame 212, that provides power, chilled water and other elements. The semiconductor devices are provided in trays 218 and then loaded into the handler 216, where they form two parallel transport paths in the temperature chamber 220, where FIG. 3 shows flow of trays 218 through the handler 216. The trays enter at an input area of a transport mechanism 310, and then are queued up in two parallel rows in the temperature chamber 220. As the trays move through the temperature chamber 220, the semiconductor devices in the trays reach the required test temperature and then the devices in the trays 218 are presented to the contactors 250 that are transported to the test head 214A sites for performing testing.

It would have been obvious to a person having ordinary skill in the art at the time the invention was made to modify Maeng by incorporating two parallel tray paths in the

test and burn-in (TABI) apparatus of Maeng, as taught by Gray, III, since the deployment of two parallel test paths will speed up the testing process of the IC semiconductor devices.

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Vesaruch et al. (US 6507206) discloses (Prior Art FIGS. 1 and 2) a testing system 100, which includes a testing chamber 102 and a temperature soaking chamber 104 having two parallel tracks 108 and 110, where a first tray such as IC tube 116 is placed on the first input 112 of the first track 108, and a second tray such as IC tube 118 is placed on the second input 114 of the second track 110, for testing of electrical characteristics of the IC packages.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to James C Kerveros whose telephone number is (703) 305-1081. The examiner can normally be reached on 9:00 AM TO 5:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Albert Decady can be reached on (703) 305-9595. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

James C Kerveros
Examiner
Art Unit 2133

By: _____

U.S. PATENT OFFICE
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Date: 1/30/04
Office Action: Non-Final Rejection

Guy J. Lamarre
for
Albert DeCady
Primary Examiner